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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/721,183

11/26/2003

Hidehiko Hiramatsu

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11/15/2006

OLIFF & BERRIDGE, PLC

P.O. BOX 19928

ALEXANDRIA, VA 22320

EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/721,183

Applicant(s)

HIRAMATSU ET AL.

Examiner

Robert Hodge

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 11/26/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Fuel Cell System regulated by an Ejector recirculation loop".

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "predetermined condition" in claims 5 and 9 is a relative term which renders the claims indefinite. The term "predetermined condition" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Therefore as long as the prior art has all of the structure of the instant claimed invention it will read on claims 5 and 9 as recited.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Patent Abstracts of Japan 09-213353 hereinafter Yamamoto.

With regards to claims 1, 3 and 8 Yamamoto teaches a fuel cell system comprising a fuel cell (1), a hydrogen supply apparatus (2), a hydrogen supply path (4), an off-gas circulation path (5) an off-gas circulation means such as an ejector pump, which has a nozzle disposed in the hydrogen supply path and is situated to suck off-gas (3), a main stream hydrogen detecting means (11 and 14), an off-gas circulation amount detecting means (10) an impurity removing means (i.e. purge 8), wherein said off-gas circulating means can be variably controlled (paragraph [0013]), see abstract, figure 2 and paragraphs [0006]-[0016]. The Examiner acknowledges that applicants have used language consistent with 35 U.S.C. 112, sixth paragraph and therefore invokes said statute. Therefore said off-gas circulating means can be anything that recycles the off-gas to the fuel inlet stream and can be any number of devices including but not limited to, conduit(s), pump(s), blower(s) and/or ejector(s), said main stream hydrogen detecting means and off-gas circulation amount detecting means can be any number of devices including but not limited to flow meter(s), pressure sensor(s), and/or hydrogen

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sensor(s), and said impurity removing means can be any number of devices including but not limited to purge line(s), water-gas separator(s) and/or filter(s).

With regards to claims 1 and 3-11 applicants recite functional limitations in apparatus claims. As long as the prior art is capable of performing the same function of the instant invention then it will read on the functional limitations in the claims.

Therefore because all of the structure of the instant claimed invention has been found in the prior art it reads on the claims as recited. Applicants are also directed to paragraph [0005] where Yamamoto discloses controlling the fuel supply based on the pressure of the recirculating gas and if the pressure falls below a predetermined value the fuel flow rate to the fuel cell is increased and paragraph [0006], where Yamamoto discloses that the flow rate of the recirculated gas (i.e. off-gas) will increase if the load demand becomes large which is directly related to the power generation request.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of U.S. Pre-Grant Publication No. 2003/0180599 hereinafter Kamihara.

Yamamoto teaches everything in the above 102 rejection.

Yamamoto does not teach that a pressure sensor is located at the inlet of the ejector pump.

Kamihara teaches a fuel cell system comprising a fuel cell (1), a hydrogen supply apparatus (3), a hydrogen supply path (4), an off-gas circulation path (8) an off-gas circulation means such as an ejector pump, which has a nozzle disposed in the hydrogen supply path and is situated to suck off-gas (10) a main stream hydrogen detecting means (18 and 6, which are pressure sensors), and an impurity removing means (i.e. purge 9), see abstract, figure 15 and paragraphs [0087]-[[0096]].

At the time of the invention it would have been obvious to one having ordinary skill in the art to include a pressure sensor at the inlet of the ejector of Yamamoto as taught by Kamihara in order to be able to measure the pressure difference across the ejector to determine how much hydrogen is being provided to the fuel cell stack.

The Examiner notes that applicants do not specifically claim pressure sensors at the inlet or outlet of the ejector in claim 2, but in order for a pressure to be measured at the upstream and discharge of the ejector pump some sort of structure must be present to perform said function, therefore as stated above the main stream hydrogen amount detecting means in this scenario can be multiple pressure sensors.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 6-8, 19-22, 27, 29 and 30 of copending Application No. 11/283,722. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of the instant claims fully encompasses the scope of the claims in copending Applications 11/283,722, especially due to the use of 35 U.S.C. 112, sixth paragraph in the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 10, 14 and

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17 of copending Application No. 11/410,159. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of the instant claims fully encompasses the scope of the claims in copending Applications 11/410,159, especially due to the use of 35 U.S.C. 112, sixth paragraph in the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Trainer Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RWH



SUSY TSANG-FOSTER  
PRIMARY EXAMINER